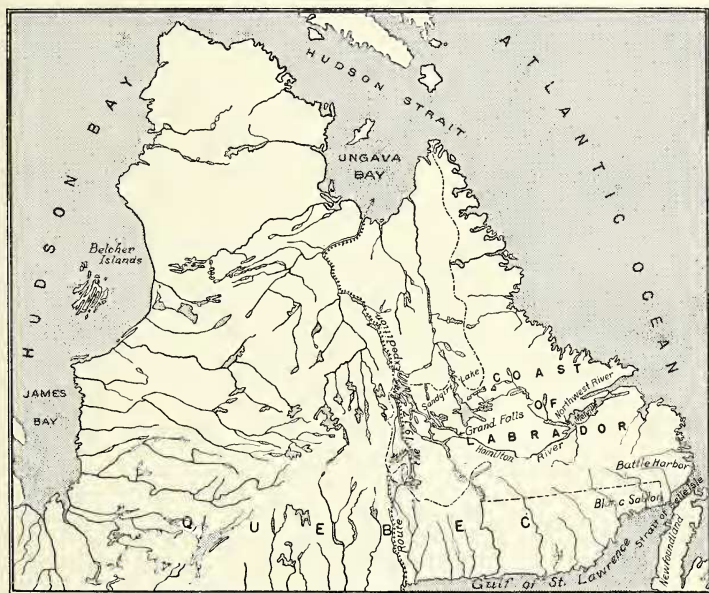


ART. III. PLEISTOCENE FOSSILS FROM THE  
BELCHER ISLANDS IN HUDSON BAY

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Through the kindness of E. R. Eller of the Carnegie Museum, I have had the opportunity of examining some Pleistocene fossils obtained by an expedition to the Belcher Islands, Hudson Bay, Canada, led by J. Kenneth Doult and Arthur C. Twomey of that museum. The narrative of the expedition and the summary of results have already been published (Doult, 1939; Twomey, 1939).



Map of Labrador Peninsula showing Belcher Islands

The following information on the localities is taken from the field notes of Mr. Doult:

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A. Tukarak Island, Belcher Islands, about  $56^{\circ} 10' N.$  lat.,  $78^{\circ} 55' W.$  long., about 100 feet above sea level near the south end of Long Lake. The shells had been dug out of the bank by lemmings (Station 5320).

B. Tukarak Island, about 300 feet above sea level in a clay bank that had been pushed to the surface by ice pressure.

C. Mukpollo Peninsula, Flaherty Island, about  $56^{\circ} 00' N.$  lat.,  $79^{\circ} 15' W.$  long. A shell bed about 10 inches thick near the top of the hills. Beneath this layer was a layer of black sand with shells that extended down at least 12 or 14 inches (Station 5311).

D. About 1 mile north of C. and about 50 feet above sea level (Station 5312).

#### LIST OF SPECIES

No attempt is made here to give an exhaustive account of the distribution of the various species. The notes on the Pleistocene distribution are taken from lists in the following papers: Hudson and James Bays (Richards, 1936); Newfoundland (Richards, 1937); St. Lawrence Valley and New Brunswick (Dawson, 1872); Lake Champlain (Goldring, 1922; Howell and Richards, 1937); Maine (Clapp, 1907; Little, 1917); and Greenland (Richards, unpublished).

The notes on the recent distribution of the species are obtained from Dawson (1872), Whiteaves (1901), Johnson (1934) and data from various museums.

The original set of fossils is in the Carnegie Museum, while duplicates have been deposited in the Academy of Natural Sciences of Philadelphia.

#### PELECYPODA

##### *Saxicava arctica* Linné

(*S. rugosa* Linné)

Common at all four localities.

*Pleistocene*: Hudson and James Bays; Greenland; Newfoundland; St. Lawrence Valley; New Brunswick; Maine; Champlain Valley of New York and Vermont. Probably the most abundant of all northern Pleistocene species.

*Recent*: Greenland to the West Indies. However, the heavy, coarse variety typical of the Pleistocene is limited to Arctic and Sub-Arctic seas.

***Mya truncata* Linné**

Localities *A*, *B* and *D*.

*Pleistocene*: Hudson and James Bays; Newfoundland and Labrador; Riviere du Loup, Montreal and St. Lawrence Valley; New Brunswick; Maine; Greenland.

*Recent*: Greenland to Massachusetts; Hudson Bay.

***Astarte striata* Leach**

Localities *A* and *B*.

*Pleistocene*: Charlton and Cary Islands in James Bay; Stag Island in Rupert River; Newfoundland; Maine; Greenland.

*Recent*: Davis Strait to Massachusetts Bay; rare.

This species has been confused with *A. banksii* Leach and *A. compressa* Linne and consequently it is difficult to ascertain its complete range.

***Astarte borealis* Schumacker**

Locality *D* (rare).

*Pleistocene*: Charlton and Cary Islands, James Bay; Labrador; Maine; Greenland.

*Recent*: Of northern distribution, the exact range is uncertain because it has been confused with *A. arctica* Gray (Greenland).

***Mytilus edulis* Linné**

Localities *A*, *B* and *D*, frequently broken.

*Pleistocene*: Various localities in James Bay; Newfoundland; Greenland; Riviere du Loup and St. Lawrence Valley; Lake Champlain Valley; New Brunswick and Maine.

*Recent*: Greenland to North Carolina; James Bay.

***Pecten islandicus* Müller**

Locality *D*, numerous perfect specimens.

*Pleistocene*: Hudson and James Bays; Newfoundland and Labrador; St. John, N. B.; Maine.

*Recent*: Greenland to Cape Cod.

***Leda pernula* Müller**

Fragments at locality *A*.

*Pleistocene*: James Bay (abundant); Riviere du Loup; Lawlors Lake, N. B.; Maine.

*Recent*: Greenland to Massachusetts Bay; Hudson Strait.

## GASTROPODA

***Acmaea testudinalis* Müller**

Localities *A*, *B* and *C*.

*Pleistocene*: Charlton and Cary Islands, James Bay; Labrador.

*Recent*: Labrador to Connecticut; Hudson and James Bays, Gulf of St. Lawrence.

***Puncturella princeps* Mighels and Adams**

(*P. noachina* Linné)

Locality *B* (rare).

*Pleistocene*: Riviere du Loup and Quebec.

*Recent*: Labrador, Gulf of St. Lawrence and in deep water to North Carolina.

## BRACHIOPODA

***Rhynchonella psittacea* Gmelin**

Locality *D*.

*Pleistocene*: Charlton and Cary Islands, James Bay; Riviere du Loup, Montreal and St. Lawrence Valley.

*Recent*: Abundant on stony or rocky ground throughout northern seas including Hudson Bay.

## CRUSTACEA

***Balanus* sp.**

Localities *C* and *D*.

## SIGNIFICANCE OF THE FOSSILS

The marine Pleistocene deposits of the Hudson Bay region are usually regarded as of early post Wisconsin age. The ice was then retreating which caused Hudson and James Bays to rise because of the increased

water released by the melting ice. The land was lower than at present due to the weight of the ice. It is believed that there was a differential uplift of the land in post Wisconsin time, when the earth had recovered from the weight of the ice, greater to the north where the weight of the ice had been greater. Abandoned shorelines up to 500 feet above the shore of Hudson Bay are evidences of this post Wisconsin uplift.

That James Bay was deeper and more saline than at present is shown by the finding of numerous shells on the beaches of Charlton and Cary Islands (85 miles north of Moose Factory) that are not at present living in James Bay. It was suggested (Richards, 1936) that these shells were Pleistocene fossils, having lived in post Wisconsin time when the Bay was of greater size than at present. Since a marked similarity is shown between the fossils from Charlton and Cary Islands and those from the Belcher Islands, it is suggested that the two faunas are contemporaneous and that rather uniform conditions prevailed over the region. The finding of brackish water fossils on the James Bay Coastal Plain south of Moose Factory (Kindle, 1924) suggests that this region was covered by a shallow brackish sea not unlike James Bay today.

Marine shells are reported in this paper up to about 300 feet above sea level or to almost the highest point on the Belcher Islands. It is therefore most probable that the entire group of islands was covered by the sea in post Wisconsin time. Therefore the flora and fauna of the islands must be of recent introduction. However, since the Belchers lie only about 60 miles west of the mainland and since the Bay is frozen solid for several months of the year, the re-population of the islands would have been relatively easy.

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